

NOTES AND NEW SPECIES (LEPIDOPTERA, PHALAENIDAE)

By FOSTER H. BENJAMIN

Bureau of Entomology and Plant Quarantine, Washington, D. C.

The following notes and descriptions resulted from identification of material for Dr. John Comstock and for various other workers, including Mr. S. E. Crumb, Mr. Fred Lemmer, and Dr. A. G. Richards.

HELIOSEA Grote

Genotype, *Heliosea pictipennis* Grote

Besides the genotype, the writer includes "*Melicleptria*" *fasciata* Henry Edwards, "*Melicleptria*" *sabulosa* Smith, "*Melicleptria*" *cresina* Smith, and "*Melicleptria*" *celeris* Grote.

All agree in having the fore tibia armed with only a single inner and a single outer claw, and no spines. While no characters were seen in the male genitalia upon which to base any separation of species within this group, *H. celeris* certainly seems specifically distinct by its larger size, different coloration, and different maculation. All of the other names mentioned above appear to represent only a single variable species.

Typical *pictipennis* has a fasciate hind wing and a rose purple ground on the fore wing. Typical *fasciata* differs from this only by the ground of the fore wing being duller and with less of the bright purple coloration. The male type of *sabulosa* has the fore wing as in *fasciata* and differs only in having the fasciate white band of the hind wing slightly interrupted by black, causing a spotted appearance. The fore wing of *cresina* has the median pale area reduced in width, the hind wing with a fasciate white band. Possibly it is a distinct species, but as no trustworthy specific character is evident the writer is inclined to consider it a race.

"*Melicleptria*" *antonito* Smith is more or less of an intermediate between *Heliosea* and *Melicleptria*, indicating that ultimately *Heliosea* may fall as a subgenus. The male type of *antonito* has one fore tibia armed with one inner and three outer claws and two inner spines; the other fore tibia is similar, but with four outer claws. The genitalia agree with those of *Heliosea* in lacking a definite clasper, and differ from *Heliosea* by having a harpe of slightly different shape with a reduced corona.

Names are lacking for two units in the genus *Heliosea*. From the superficial standpoint these would immediately be assigned to specific status, but the writer prefers to associate them as follows:

HELIOSEA PICTIPENNIS DEFASCIATA, new subspecies

Entirely similar to *pictipennis fasciata* excepting that the hind wing is nearly uniformly black above, and on the under side the white of the hind wing is largely restricted to the apical and subapical portions of the wing.

Type locality: Death Valley, Calif.

Number and sexes of types: Holotype male, allotype female, two male and one female paratypes, all March 29, 1928, submitted by Dr. John Comstock.

Location of types: In U. S. National Museum, Cat. No. 50075. Paratypes returned to Dr. Comstock.

HELIOSEA CELERIS MELICLEPTRIOIDES, new subspecies

Entirely similar to *celeris celeris* excepting that the ground color of the fore wing is olive fuscous, and the median band is conspicuously cream white creating the habitus of a *Melicleptria*, while the hind wing has much less of the deep red orange of the typical subspecies.

Type locality: Keddie, Plumas County, Calif.

Holotype: Male, "VI-20," unique.

Location of type: In U. S. National Museum, Cat. No. 50076.

SCHINIA CRENILINEA Smith

Schinia crenilinea Smith, 1891, Trans. Amer. Ent. Soc. 18: 129.

Eupanychis crenilinea, Hampson, 1903, Cat. Lep. Phal. B. M. 4: 95, pl. 69, f. 8.

The type (labeled Houston, Texas) and two other specimens labeled "Ark." and "Hope, Ark." are in the National collection. The type lacks the front legs. On the character of the armature of the fore tibia, one Arkansas specimen would fall into the genus *Lygranthæcia*, and the other into the genus *Schinia*. The species seems related to *Schinia balba* Grote and to *Schinia zwalsinghami* Hy. Edwards, and not to *Eupanychis spinosa* Guenée (genotype of *Eupanychis*). Therefore *crenilinea* should be removed from its present placement in *Eupanychis* and associated with *Schinia balba*.

EUPANYCHIS SPINOSÆ Guenée

Heliothis spinosæ Guenée, 1852, Spc. Gén. 7 (Noct. 2): 182; Boisduval and Guenée, Spec. Gen., Atlas, 5-7: 5, pl. 9, f. 10 female; Grote, and Robinson, 1870, Trans. Amer. Ent. Soc. 3: 180; Grote, 1873, Bull. Buff. Soc. Nat. Sci. 1: 118.

Schinia spinosæ, Smith, 1883, Trans. Amer. Ent. Soc. 10: 233; Smith, 1893, Bull. U. S. Nat. Mus. 44: 281.

Eupanychis spinosæ, Grote, 1890, Revised Check List, p. 34; Hampson, 1903, Cat. Lep. Phal. B. M. 4: 94, fig. 30; Holland, 1903, Moth Book, p. 226, fig. 136.

Anthæcia hirtella Grote and Robinson, 1866, Proc. Ent. Soc. Phila. 6: 19, pl. 3, f. 3.

Eupanychis camina Smith, 1906, Jour. N. Y. Ent. Soc. 14: 28.

The type of *spinosæ* is in the National collection via the Oberthür and the Barnes collections. The pin of the specimen bears the label "Heliothis Spinosæ Gn. Spec. 937 Canada Coll. Feist. C'est l'individu qui a servi a ma description." This specimen is a female, as stated on the original plate, and not a male as stated in the original description. The hind wing has the white ground color (mentioned in the original description) somewhat stained. The yellow tint shown on the original figure (in contradiction to the description) is presumably only the artist's guess regarding the original coloration. This type is a specimen of the species usually identified as *spinosæ* in collections.

Grote and Robinson, 1870, listed the name *hirtella* as a synonym.

The name *Eupanychis camina* Smith is based on a single female specimen, Weed and Fiske no. 2164, Hampton, N. H. A topotype bearing the same Weed and Fiske number, and agreeing perfectly with Smith's description, is in the National collection. It is merely a faded example of *E. spinosæ*.

Specimens of this species are not abundant in collections, those in the National collections being mostly from Lakehurst, N. J. (Fred. Lemmer) and from Brown's Mills, N. J. (F. H. Benjamin), a few other specimens being labeled with the names of towns in the pine barren regions of Long Island and of New Jersey.

EUPANYCHIS SCISSOIDES, new species

Head and thorax rufous brown. Fore wing with the ground color rufous brown, more or less obscured by olivaceous in the median area; ordinary lines and spots indistinct; basal line invisible; transverse anterior line geminate, irregular, in general excurved; median shade of the ground color, outwardly oblique from costa through reniform area, inwardly oblique to inner margin; transverse posterior line obscurely geminate, more or

less produced into a series of small points, excurved around cell, incurved in submedian interspace; subterminal line nearly invisible, indicated by blackish in tornal region; terminal line composed of black dots between the veins; fringe rufous brown, slightly tinted with purplish, and scarcely interlined. Hind wing bright yellow, suffused with black at the extreme base and along inner margin, with a conspicuous quadrate black discocellular mark, and a broad black marginal band; fringe pale, obscurely interlined with purplish rufous. Beneath: Ground color bright yellow; fore wing with a black basal dash connected to a black orbicular; a black reniform outwardly oblique connecting a purplish rufous region, along the costa and at the apex, with a broad black area extending over the tornal region and to opposite the cell, thus isolating a small area of the bright yellow ground color distad of the cell. Hind wing with the costal margin powdered with purplish rufous, with black at base of wing extending along inner margin and joining the broad marginal band, the latter angulate at vein 4, purplish rufous above the angle, black below. Abdomen fuscous above, the segments distally margined with pale scales; beneath tinted with purplish rufous, and with a pair of basal hair pencils, in pockets, scarcely visible except on a slide.

Expanse: Male 20 mm., female 23 mm.

Number and sexes of types: Holotype male and allotype female, both labeled "St. Petersburg, Fla., Oct."

Location of types: In U. S. National Museum, Cat. No. 51085.

The bright yellow ground color of the hind wing, as well as the rufous brown coloration of the fore wing with its uncontrasting maculation, immediately separates the present species from *Eupanychis spinosæ*. The new species superficially bears a startling resemblance of *Canidia scissa* Grote (see 1903, Hampson, Cat. Lep. Phal. B. M. 4: 17, pl. 55, f. 5), but the eyes are rounded (as in *Eupanychis*), and not greatly reduced in width (as in *Canidia*); the fore tibia has one claw and two long curved spines on the inner side, and one claw and two short spines on the outer side, while the fore tibia of *C. scissa* has one claw and three rather weak spines on the outer side, and two claws and two weak spines on the inner side. The genitalia of both species are typically heliothid, hence resemble one another strongly, but differ in almost every detail. Those of the new species are much the larger, with more elongated harpes, a more triangular shaped tegumen, and the vesica is much more heavily spiculated.

EUXOA CAMALPA Dyar

Porosagrotis camalpa Dyar, 1912, Proc. U. S. National Museum 42: 57; Draudt, 1924, in Seitz, Macrolepid. 9: 36.

Euxoa clavigera Dyar, 1922, Ins. Insc. Menstr. 10: 166; Draudt, 1924, in Seitz, Macrolepid. 9: 40, pl. 6 d.

The writer considers the types to represent sexes of a single species of *Euxoa*. The male antenna is heavily bipectinate, almost as in *Agrotis* (*Porosagrotis*) *orthogonia* Morrison.¹ The bifurcate clasper has the outer arm very short, the inner arm of moderate length.

Both of the published names apply to the race from the region of Mexico City, Mexico. The ground color is quite dark, and in addition there is a heavy black irroration; in consequence the maculation is not conspicuously contrasting. The superficial appearance is not unlike that of a well marked *Euxoa messoria* Harris excepting the pale veins of the median area of the fore wing which resemble those of *Porosagrotis*.

EUXOA CAMALPA MANCA, new subspecies

Similar to typical *camalpa* but the ground color very pale, the maculation extremely contrasting, the general appearance like that of pale *Agrotis* (*Porosagrotis*) *orthogonia* Morrison, rather than that of a *Euxoa*.

Type locality: Alpine, Tex.

Number and sexes of types: Holotype male, allotype female; 15 male, 50 female paratypes, various dates, April to August, 1926, all O. C. Poling, collector.

Location of types: In U. S. National Museum (Cat. No. 50674) excepting three paratypes, the latter specimens having been submitted by Dr. John Comstock for identification and returned to him.

Notes: Most authors would unquestionably consider the present insect as specifically distinct, but the writer prefers to describe it as a subspecies of *camalpa* because no differences of specific significance were found in either antennae or genitalia. Anyone having difficulty in visualizing the startling difference in appearance between typical *camalpa* and *manca* may consult Draudt's figures of *clavigera* and of *orthogonia* (l. c., pl. 5 h). While these figures are incorrect in many details, the general colorations and habitus are essentially correct.

¹ Only a few of the basal joints of a single antenna are present on the male type (of *clavigera*), but these few joints indicate an antenna entirely similar to that of the following subspecies.

EUXOA BICOLLARIS Grote

Specimens with a broad black band on the collar, thus resembling *abnormis* Smith, were received by the writer about ten years ago from Mr. E. A. Dodge, and were labeled Exeter, Tulare County, Calif. These specimens present an extremely washed-out appearance, with many of the markings obsolescent, but with the reniform conspicuous. They agree perfectly with Hampson's figure of a type of *bicollaris* (Cat. Lep. Phal. B. M. 4, pl. 62, f. 10) and in view of the locality are almost certainly that species. The antennae of the males are somewhat more heavily serrate than those of *abnormis*, judging from the unique type of the latter species, but seem slightly less heavily serrate than those of the species usually determined as *bicollaris* in collections, discussed below under the name *sponsa*. The genitalia are of the same general pattern as those of the following new species and of *sponsa*, and a very close relationship of these species having a broad black band on the collar is evident in spite of some minor differences in antennal serrations which have previously been used as grouping characters.

EUXOA INYOCA, new species

Male antennae minutely serrate and fasciculate. Head and thorax sordid luteous to gray, with a black admixture; collar with a broad black transverse band. Fore wing sordid luteous powdered with black, appearing sordid luteous gray; ordinary lines, excepting the subterminal, poorly defined, the latter an irregular pale shade inwardly defined by fuscous, sometimes brownish, shadings; orbicular large, round or slightly oblong, pale, more or less defined by a thin black line, the center irrorated with black; claviform usually obsolescent, occasionally indicated by a few black outlining scales; reniform strongly kidney-shaped, pale luteous, with central dusky crescent, and more or less outlined by a thin black line; a thin, black, broken terminal line; fringe luteous at base, with a darker interline outwardly defined faintly by luteous, distally dusky. Hind wing sordid whitish, more or less heavily suffused with fuscous, darkest on the veins, on the obscure discal mark, and distally; a thin fuscous terminal line; fringe luteous at base, tipped with white, and with a fuscous interline. Beneath: Fore wing sordid luteous white powdered with fuscous, the discal mark obscure; hind wing paler luteous white, the fuscous powderings strongest toward the costa, on the discocellulars to form a spot, and sometimes forming an obscure median shade. Expanse: Male 34-38 mm., the female averaging slightly larger.

Somewhat similar in appearance to *abnormis* Smith, and formerly isolated in the Barnes collection as possibly that species. The antennal serrations, however, resemble those of *bicollaris*,

being distinctly heavier than those of *abnormis*. Paler than any described species in the group excepting *bicollaris*, and superficially differing from that species by the fore wing being more powdery, with better defined markings, and appearing grayer. The genitalia are essentially like those of *bicollaris*, *sponsa*, *loya*, and other species or forms of this series, all of which seem to possess somewhat variable genitalia from the standpoint of the exact sizes and shapes of the parts of the bifurcate claspers and the harpes, even in specimens from identical localities. However, the harpes of the present species seem more strongly ex-curved along the ventral margin than those of other species of the group.

Type locality: Inyo County, Calif.

Number and sexes of types: Holotype male, allotype female, and 12 male and 10 female paratypes, all 15-30 June 1922 (O. C. Poling).

Location of types: In U. S. National Museum, Cat. No. 50597.

EUXOA SPONSA Smith

Several specimens were reared from larvae by Mr. S. E. Crumb. Both he and the writer consider these specimens to represent only a single species. One of these appears to agree perfectly with the type of *sponsa*, while the others vary toward strongly rufous tintings, which with their size and markings make the series appear intermediate between *loya* Smith and *monteclara* Smith (*obscura* Hill). The writer has been unable to isolate any stable genitalic difference between specimens representing these names. Typically *loya* seems to be a form from the Sierras, with somewhat more luteous in the region of the reniform and a somewhat less chunky appearance than in typical *monteclara*. The two latter names have been treated as synonymic in the Barnes & McDunnough Check List and the present evidence leads to the conclusion that *sponsa* is also a conspecific form. However, *sponsa* may not be the oldest specific name available. *E. satis* Harvey belongs in the group, and when sufficient specimens are obtained to establish synonymy this name may take specific priority. Excluding the brighter *satis*, specimens of the *sponsa* complex, especially those belonging to the *monteclara* form, have very largely constituted the "*bicollaris*" of collections.

EUXOA ATROPULVEREA Smith

This species was originally described from three females. The type, in the U. S. National Museum, has not as yet been perfectly matched with any male. The habitus strongly suggests a dark example of *scotogrammoides* McDunnough.

EUXOA BRUNNEIGERA Grote

Topotypical specimens are large for their group, the fore wings of a rich red brown with a conspicuous silken glint.

EUXOA BRUNNEIGERA LATEBRA, new subspecies

Male antennae finely serrate and fasciculate, slightly variable, much as in typical *brunneigera*. Collar usually with a distinct narrow transverse blackish stripe which occasionally becomes obsolescent. Fore wing dark fuscous brown with a silken glint and showing little of the usual red brown tintings; markings essentially as in typical *brunneigera*. Hind wing nearly uniformly smoky. Beneath: Whitish strongly powdered with fuscous, with common medial line, and a discal spot on each wing. Sexes similar in appearance. Expanse: Male 33-38 mm., female the same.

Male genitalia similar to those of typical *brunneigera*, somewhat smaller in size, somewhat variable in the exact shape of the harpe, in the lengths of the arms of the bifurcate clasper, and in their proportions to one another.

Type locality: Truckee, Calif.

Number and sexes of types: Holotype male, July 16-23, allotype female, Aug. 16-23, and 6 male and 10 female paratypes with various dates, July 1 to Sept. 30.

Location of types: In U. S. National Museum, Cat. No. 50097.

Notes: The present series was separated by Dr. Barnes as a distinct species with a note that it was the *brunneigera* of the National Museum. While its darker coloration makes it unique in the *brunneigera* group, the writer prefers to at least temporarily consider it a subspecies, although its claim to specific rank is at least equal to that of many of the so-called species of *Euxoa*. It is, to a large extent, the basis of records of *brunneigera* from California by J. B. Smith, and a series from Placer County, bearing a Koebele rearing number 141, is in the U. S. National Museum. This series is the *brunneigera* of Cockerell (1905, Can. Ent. 37: 361) and of Dyar (1899, Proc. Ent. Soc. Wash. 4: 318; and 1903, in Hampson, Cat. Lep. Phal. B. M. 4: 270), the latter author describing the larvae.

EUXOA BIFASCIATA Smith

The writer has never seen another specimen exactly like the type which is figured both by Hampson and by Holland, the latter figure by far the more accurate.

EUXOA BIFASCIATA LOWENSIS, new subspecies

Male antenna finely serrate and fasciculate. Base of collar with an evanescent black stripe. Fore wing with the ground color ochreous, more or less suffused with rufous purple; markings as in *bifasciata*, but all of the lines thin and neat, almost lacking the geminate appearance and not diffused; orbicular and reniform inconspicuously outlined in black; subterminal line indicated by its shading; median shade often obsolescent in the male, usually easily visible on the female. Hind wing whitish, strongly tinged with dull purplish brown, darker in the female. Fringes as in *bifasciata* and some of the paler *brunneigera* forms. Beneath whitish, slightly tinged with luteous and powdered with darker scales, the usual common line obsolescent in the male, indicated in the female, the usual discocellular spots practically absent in both sexes. Expanse: Male 34 mm., female 29 mm.

Male genitalia essentially as in the *brunneigera* group but the inner arm of the clasper, like that of the type of *bifasciata*, more strongly S-shaped.

Type locality: Mt. Lowe, Calif.

Number and sexes of types: Holotype male, allotype female, and 7 male and 4 female paratypes, all Aug. 1-7 1921.

Location of types: In U. S. National Museum, (Cat. No. 50098); paratypes returned to Dr. Comstock.

Notes: Received from Dr. John Comstock for identification. The present insect is possibly distinct specifically, but the writer prefers to describe it as a subspecies of *bifasciata*.

EUXOA BIFASCIATA BISAGITTIFERA, new subspecies

Male antennae serrate and fasciculate, the serrations appearing longer than those of *bifasciata* and of *lowensis*, possibly because of the larger size of the individuals. Ground color of the head, collar, and fore wing concolorously ochre drab slightly powdered with fuscous, the collar with no interline or with only a slight trace of one; markings as in *brunneigera* except that the gemination of the lines is not so pronounced, while the median shade is obsolescent, and the transverse anterior and posterior lines more conspicuous, thus creating a bifasciate appearance. Hind wing suffused with ochre drab, paler basally. Beneath: Whitish, strongly tinged with ochre drab and powdered with fuscous, with a common line, and with a faint discocellular spot on each wing. Expanse: Male 37 mm., female 37-39 mm.

Male genitalia essentially of the same general pattern as those of the *brunneigera* group, but the inner and outer arms

of the bifurcate clasper are subequal in length, and the harpe much more boot-shaped.

Type locality: Glenwood Springs, Colo.

Number and sexes of types: Holotype male, Sept. 1-7, allotype female, Aug. 20, and 1 female paratype, Aug. 24-30.

Location of types: In U. S. National Museum, Cat. No. 50099.

Notes: The present insect formed, in part, the "*bifasciata*" of the Barnes collection. While very probably specifically distinct, the writer prefers to describe it as a subspecies and retain it in that status until a sufficient quantity of the true *bifasciata* is obtained to indicate the correct rank of these closely related organisms.

EUXOA PLEURITICOIDES, new species

Male antennae serrate and fasciculate. Head, thorax, and fore wing pale olive brown, suffused with darker olive brown, irrorated with whitish and fuscous; collar with a distinct, conspicuous but thin, transverse black line. Fore wing with the basal line black, geminate, visible as two conspicuous oblique dashes on costa, interrupted across base of cell, as two small spots below cell, invisible below submedian fold; transverse anterior line black, geminate, produced to points in the cell, on submedian fold, and below vein 1; orbicular slightly oval, nearly round, filled with fuscous, defined by white, obscurely outlined by a thin black line; claviform large, concolorous, more or less outlined by black; reniform kidney-shaped, with more or less of a luteous crescent in the fuscous filling, defined by luteous and whitish, faintly outlined by black; transverse posterior line blackish, faintly geminate, the outermost of the lines more or less obsolescent, strongly produced to points on the veins, ex-curved around cell, slightly incurved in submedian area; sub-terminal line inwardly defined by fuscous shadings which more or less form sagittate dashes between veins 6-5 and 5-4 and also form a subternal blotch, the line itself pale, irregular, inwardly oblique from costa to vein 7, produced to points on veins 7, 6, 4, and 3, forming a W-mark on the two latter veins; terminal line a row of contiguous black crescents; veins disconcolorously marked with black and with white scaling; fringe luteous at base, with fuscous interline outwardly defined by a thin whitish line, terminally mixed fuscous and whitish. Hind wing white, with the veins, discal spot, and terminal margin marked with fuscous, the inner margin tinged with rufous; terminal line black; fringed luteous at base, with fuscous interline, distally conspicuously pure white. Beneath: White or whitish; the fore wing suffused and irrorated with fuscous; the hind wing with fuscous irrorating the costal and subcostal areas, tinging

the veins and slightly suffusing the outer margin; each wing with a broken black terminal line, a fuscous discal mark, and an obscure common shade-line lost below vein 5 of the hind wing; fringes as on upper side, but the markings more obscure. Expanse: Male 46-47 mm.

Superficially the present species resembles *simona* McDunnough and *pleuritica* Grote, but is the largest known species in this group. The male antennae are somewhat more heavily serrate and fasciculate than those of *simona* but on the whole the ratio between the serrations of the antennae of all three species seems about proportional to the average size of the adults of these species. The male genitalia combine characters of both of the other above-mentioned species; shape of harpe as in *pleuritica*, truncate, with the anal angle almost acute; sacculus as in *simona*, heavy; agreeing with the latter in possessing a clasper with a stout outer arm, the inner arm more like that of *pleuritica*; also agreeing with *simona* in the asymmetry of the bifurcate claspers.

Type localities and number and sexes of types: Holotype male, Crater Lake, Oreg., July 16-23; paratype male, Truckee, Calif., 8-26 (Coll. Jacob Doll).

Location of types: In U. S. National Museum, Cat. No. 50602.

Notes: A female labeled "Alamosa, Col." and "VIII-11" (Coll. Jacob Doll) may be conspecific.

EUXOA LILLOOET McDunnough

Euxoa lillooet McDunnough, 1927, Can. Ent. 49: 195.

This species was described from six females from Seton Lake and Salmon Arm, British Columbia. It is represented in the National collection by a paratype from the latter locality, and by specimens from Stockton and Eureka, Utah, from Durango and Glenwood Springs, Colo., from Jemez Springs and Little Tesuque Canyon, vicinity of Santa Fe, N. Mex., and from White Swan, Wash.

EUBUCHHOLZIA Barnes & Benjamin

Type, *Arsilonche colorada* Smith

The generic characters have been discussed under the name *Buchholzia* Barnes & Benjamin (1926, Pan. Pac. Ent. 3: 68), subsequently amended to *Eubuchholzia* Barnes & Benjamin (1929, Bull. Brooklyn Ent. Soc. 24: 184).

EUBUCHHOLZIA COLORADA Smith

- Arsilonche colorada* Smith, 1900, Proc. U. S. National Museum 22: 414; Dyar, 1903 (1902), Bull. U. S. National Museum 52: 105; Holland, 1903, Moth Book, p. 159.
- Simyra colorada*, Hampson, 1909, Cat. Lep. Phal. B. M. 8: 177 (partim, nec description and plate 127, f. 14).
- Cea cirphidia* Hampson, 1910, l. c. 9: 280, pl. 143, f. 13; Barnes & McDunnough, 1917, Check List, p. 72.
- Cea leucanidia* Hampson, 1910, l. c. 9: 280, text fig. 119; Barnes & McDunnough, 1917, l. c., p. 72 (syn. of *colorada*).
- Cea colorada*, Barnes & McDunnough, 1917, l. c., p. 72.
- Buchholzia colorada*, Barnes & Benjamin, 1926, Pan. Pac. Ent. 3: 68; Tietz, 1934 (1933), Jour. N. Y. Ent. Soc. 41: 442 and 456.
- Eubuchholzia colorada*, Barnes & Benjamin, 1929, Bull. Brooklyn Ent. Soc. 24: 184.

The species seems to have a wide distribution yet is relatively rare in collections. Only five males and four females, mostly in poor but recognizable condition, are in the U. S. National Museum. These are labeled Glenwood Springs, Colo. [type female and female "cotype" of *colorada*]; Salt Lake City, Utah; Callao, Juab County, Utah; Pullman, Wash.; West U. S. A., Walsingham [type lot of *leucanidia*] [Crooked River, Oreg.]; and San Diego, Calif. Specimens vary in the depth of coloration, especially noticeable in the amounts of brownish suffusion on the hind wings, which in some individuals appear almost ochreous white, in others varying to heavily suffused with brown. The presence of, or absence of, black marking the discocellulars of the fore wings seems of no significance. Capt. Riley reports the types of both of Hampson's names to show no structural difference, special attention having been given to the peculiar frons. The male genitalia of individuals from Callao, from Pullman, and from San Diego seem identical.

The writer therefore concludes that Hampson simply named the two extremes of *E. colorada*. This confusion is partly accounted for by the fact that he misidentified a Colorado specimen of *Simyra henrici* Grote as *colorada* Smith and his description and figure under the latter name apply to *henrici*. The misidentification seems to have been the natural outgrowth of Smith's erroneous assignment of *colorada* to *Arsilonche* (sensu *Simyra*), and partly because of the variability of *henrici*, that species also extending farther westward than generally known.

GRAPTOLITHA LEPIDA Grote

Lithophane lepida Grote, 1878 (February), Bull. U. S. Geol. Surv. Terr. 4: 181.

Xylina lepida Lintner, 1878, Ent. Contrib. 4: 95; Smith, 1893, Bull. U. S. Nat. Mus. 44: 230; Smith, 1900, Trans. Amer. Ent. Soc. 27: 43, pl. 2, f. 31 (male genitalia), pl. 5, f. 39.

Graptolitha lepida, Hampson, 1906, Cat. Lep. Phal. B. M. 6: 260, pl. 102, f. 16; Draudt, 1925, in Seitz, Macrolep. 7: 196, pl. 28g.

This species was first described by Grote in much detail as "*Lithophane lepida*, Lintner MS.", with the only cited locality "Oldtown, Me. (Mr. Charles Fish)." Later in the same year Lintner described the species as new "from 2 males and 3 females taken at Sugar, at Center, N. Y., on October 1st, 8th, 9th, 12th and 15th by Mr. W. W. Hill. The types are in Mr. Hill's cabinet." He also cites the Grote reference and the Maine locality.

According to information furnished by Dr. A. G. Richards there is a specimen labeled type, Center, N. Y., W. W. Hill, in the New York State Museum, Albany, N. Y. The National collection contains 2 males and 3 females of which 1 male topotype (W. W. Hill) was recently obtained through the courtesy of Dr. Richards. The other two females are also topotypes (W. W. Hill), and one of them may be an actual type, of Lintner's *lepida*. The writer has no record of the present location of the Oldtown, Maine (Charles Fish) specimen from which Grote drew his description. It is not listed by Hampson (l. c.) as being in the British Museum, where it should be.

The species has been amply described by Grote, Lintner, Smith, and Hampson, and is figured by the two last authors. The Hampson figure is good. The Smith figure is poor, obviously owing at least in part to faulty lighting during the process of photographing. The right side of this figure is much too pale for any known *lepida* form, while the left side strongly resembles that of *vanduzeei* Barnes discussed below. Draudt's figure is probably copied from Hampson's.

GRAPTOLITHA LEPIDI VANDUZEEI Barnes

Graptolitha vanduzeei Barnes, 1928, Pan. Pac. Ent. 5: 9.

A single specimen, a paratype male, is in the National collection.

The genitalia do not indicate a species distinct from *lepida*. The abdomen had been glued on this specimen, but is presumably authentic as this example was one of the last received by Dr. Barnes, who did not repair specimens with parts of other specimens, and the chance of someone in California repairing with an abdomen of the rare eastern *lepida* is remote.

Superficially the paratype of *vanduzeei* is almost identical with typical *lepida*, excepting that there are a few whitish scales in the base of the reniform, in the claviform area, and in the subterminal area on the submedian fold.

While the original description compares *vanduzeei* with "*lepida*," the latter name was employed by Barnes for a long series of specimens from the New Jersey pine barrens which in recent years have been distributed as *lepida*.

GRAPTOLITHA LEPIDA ADIPEL, new subspecies

Graptolitha lepida, Barnes, 1928, Pan. Pac. Ent. 5:9.

Similar to typical *lepida* but much smoother in appearance, the maculation of the fore wing much less distinct, the transverse anterior and transverse posterior lines connected or nearly connected by their own dentation in the submedian fold (as in typical *lepida*) but with the strong black bar of typical *lepida* and of its variety *vanduzeei* obsolescent or obsolete, the general lack of strong maculation causing the present variety to fall into the same couplet with the otherwise very different *unimoda* Lintner in Hampson's key. Hind wing darker red brown than that of typical *lepida*.

Type locality: Lakehurst, N. J. (Fred. Lemmer).

Number and sexes of types: Holotype male, allotype female, and 64 male and 87 female paratypes bearing various dates, November, also April 5, April 23 and May 21.

Location of types: In U. S. National Museum (Cat. No. 51191); 105 paratypes returned to Mr. Lemmer.

Notes: Notwithstanding that the difference in habitus and in superficial characters between the present form and typical *lepida* is about equivalent to that of *unimoda* Lintner versus *tepida* Grote, and sufficient to cause *vanduzeei* to be described as a distinct species, the writer prefers to describe the specimens from the pine barrens as representing a subspecies of *lepida*. No character was found in the genitalia to indicate specific distinctness. However, on other groups of the same genus, species, which are unquestionably considered distinct from one another, can scarcely be distinguished from one another by male genitalia. Hence the similarity of these structures as between typical *lepida* and *adipel* cannot be considered as absolute proof of conspecific identity. Besides the type series, only two specimens taken by collectors other than Mr. Lemmer are in the National collection, and these are also labeled Lakehurst, N. J. The unusually late fall date of flight, when few people are collecting, at least partly accounts for the rarity of *adipel* in collections.

MAMMIFRONTIA Barnes and Lindsey

Genotype, *Mammifrontia leucania* Barnes and Lindsey.

Barnes and Lindsey, 1922, Bull. Brooklyn Ent. Soc. 17: 75, *leucania* (new species) sole species and designated type.

The original descriptions of the genus and species were based upon a unique female specimen labeled "Cedar City, Utah," and "Holotype male," but cited as a female in the descriptions. The generic description is inaccurate, as veins 3 and 4 of the hind wing are slightly stalked in the type specimen, a single spine is present between the spurs of the hind tibia, and, while the thorax of the specimen is rubbed, there is a decided indication that the prothorax originally possessed a tufted crest.

There is now an additional specimen, a male, in bad condition and lacking both hind legs and genitalia, in the National collection. The male antenna is practically simple, the joints being only slightly marked and fasciculated. In this male, veins 3 and 4 of the hind wing are connate. The specimen is labeled "Callao, Juab Co., Utah," and was collected by Tom Spalding.

The female genitalia of the genotype are peculiar in that the bursa is small, the genital opening is strongly invaginated in the form of a V, and the two halves of the ovipositor are each obliquely truncate at the tip and also produced to a small caudolateral tooth.

MAMMIFRONTIA RILEYI, new species

Head, thorax, abdomen, and fore wing ochreous; the prothorax tinged with purple. Fore wing more or less irrorated with rufous brown to fuscous purple, these darker colorations defining the ochreous-white veins; lower angle of discocellulars somewhat darkened; the ordinary spots and markings obsolete; fringe basally pale ochreous, distally white, with a faintly darker and usually purplish interline. Hind wing silken, pale cream white, the veins and the basal half of the fringe slightly darker cream color. Expanse: Male 29 mm., female 30-34 mm.

Number and sexes of types: Holotype male, Glendale, Calif., "April 11-26"; allotype female, id., "March 9-27"; paratypes as follows: 2 females, Los Angeles, Calif., "May 1-20-28"; 1 female, Los Angeles Co., Calif. (date illegible); 1 female, Verdugo, Glendale (Calif.), "June 1-15-25"; 1 female, Ventura, Calif., June 13, 1916, E. O. Essig collector, on wild rye; all, excepting the last mentioned specimen, from Dr. John Comstock for determination.

Location of types: In U. S. National Museum, Cat. No. 50603; 1 paratype deposited in the British Museum of Natural History; others returned to Dr. Comstock.

Notes: Named in grateful acknowledgment of the assistance of Capt. N. D. Riley of the British Museum.

The present species superficially resembles those specimens of *Leucania pallens* Linnaeus which possess the fore wings tinged with rufous, lack the subterminal black dots, and have white hind wings, thus differing from *M. leucania* which is a much smoother-appearing species lacking the contrasting white lines on the veins. Fresh specimens of the new species have a strong tufted crest on the prothorax, and a slight double ridge-like crest on the metathorax. These crests are easily lost by rubbing, and certain scale formations on the available specimens of *M. leucania* indicate that they are also present in fresh specimens of that species. Veins 6 and 7 of the hind wing are shortly stalked (connate in *M. leucania*); while veins 3 and 4 are connate in all specimens before the writer (variable in *M. leucania*), and there is no spine between the spurs of the hind tibia (a character which has been considered of subfamily significance, but which is not specific in the related genus *Apamea* and in several other Apatelinae). In view of the entire similarity of the other external characters usually used in defining apateline genera, including both the peculiar head structures and the habitus, indicating that the larvae are probably stem borers in grasses or similar plants, the writer prefers to place the new species with *leucania* in the genus *Mammifrontia*, rather than to create a new generic name. However, the female genitalia of the new species indicate that it is not as closely related to *M. leucania* as the external characters which are ordinarily used would seem to suggest. Each half of the ovipositor tapers toward the tip, being slightly curved, and neither truncated nor produced to a caudo-lateral tooth; the genital opening is evenly curved, and is not in the form of a V; the genital tube is ridged with strong chiten in an irregular manner, and is more heavily spiculated than that of *leucania*; and the bursa is relatively large.

Examination of fresh material of *M. leucania*, especially males, is necessary before any decision can be reached regarding the value of a new monobasic generic name for *rileyi*. The present evidence would indicate two groups within a single genus similar to the groups in the allied genus *Gortyna* (type *micacea* Esper, *Hydroccia* of Hampson).

The male genitalia of *Mammifrontia rileyi* are similar to those of *Gortyna*, especially resembling those of *G. petasitis* Doubleday, thus correlating with the habitus and the head in indicating a boring habit for the larvae. The harpe has a small trigonate divided cucullus, with a corona extending only about half way to the finger-like anal angle; the editum is conspicuous; the clasper extends over a part of the cucullus; the ampulla is short and setulose, but is finger-like in shape; the sacculus basally extends into a lobate and slightly setulose pad (the clavus); the uncus is broad and tongue-shaped, but with a spine-like tip; the arms of the transtilla are relatively strong; the annellus is in the form of a curved plate (the juxta), relatively long and broad, and basally pointed; the aedoeagus is striated near the orifice, and the vesica possesses a minutely scobinated band, a long cornutus, and about ten strong, short, heavily bulbed cornuti.

MICRATHETIS TECNION Dyar

Microthetis tecnion Dyar, 1914, Proc. U. S. Nat. Mus. 47: 179; Draudt, in Seitz, 1926, Macrolepid. 7: 263, (pl. 42a, inedit.?).

Specimens collected by the writer at Brownsville, Texas, are in the collections of the U. S. National Museum and Fred. Lemmer.



TWO UNUSUAL BUTTERFLIES TAKEN IN SOUTHERN CALIFORNIA

By E. L. HULBIRT

On September 2, 1934, a fairly fresh male specimen of *Dalla pirus* Ed. was taken near Carlsbad by the edge of a salt marsh. While this little skipper is widely distributed in Arizona and Utah, its presence along the ocean front in Southern California is apparently a new record for locality.

A good male specimen of *Polygonus lividus* f. *arizonensis* Skin. was taken at Glendora on September 9, 1935. It was feeding on lantana blossoms and was easily netted. This butterfly has rarely been seen in California, and so far as we know it has not appeared before at any point as far north as Glendora.